AMENDMENTS TO THE CLAIMS

A detailed listing of all claims that are, or were, in the present application, irrespective of whether the claim(s) remains under examination in the application are presented below. The claims are presented in ascending order and each includes one status identifier. Those claims not cancelled or withdrawn but amended by the current amendment utilize the following notations for amendment: 1. deleted matter is shown by strikethrough; and 2. added matter is shown by underlining.

1. – 13. (Cancelled)

Please add the following new claims:

14. (New) A device designed to spray an overheated liquid in the form of very fine droplets at a very high speed, the overheated liquid relates to a liquid at a temperature To and to a pressure Po greater than the saturated vapor pressure Ps corresponding to To, the vapor pressure Ps itself being greater than the pressure P1 of the gaseous medium in which the liquid is sprayed, comprising a nozzle body fixed on a support allowing the supply of overheated liquid, the nozzle body comprising a conduit where the overheated liquid circulates, followed by one or more convergent heads and by one or more injectors where the overheated liquid attains speed to open onto a divergent and speed attainment nozzle where the liquid jet partially evaporates and instantaneously explodes under the effect of the pressure difference between the liquid and the ambient medium of the nozzle, to form a mixture of fine droplets and vapor, the generatrix of the

divergent nozzle presenting a discontinuity, that is an angle, at its intersection with that of the injectors, and the exit section of this nozzle is sized so that the mixture is ejected from the nozzle at the pressure P1 of the external medium at the maximum ejection speed.

15. (New) The device according to claim 14, wherein at the output of the injectors, the angle between the generatrix of the divergent nozzle and the walls of the injectors is a right angle.

16. (New) The device according to claim 14, wherein the divergent nozzle is partially or totally integrated with the external support.

17. (New) A device designed to spray an overheated liquid in the form of very fine droplets at a very high speed, the overheated liquid relates to a liquid at a temperature To and to a pressure Po greater than the saturated vapor pressure Ps corresponding to To, the vapor pressure Ps itself being greater than the pressure P1 of the gaseous medium in which the liquid is sprayed, wherein a nozzle body fixed on a support allowing the supply of overheated liquid, the nozzle body comprising a conduit where the overheated liquid circulates, followed by a convergent head and an annular injector passage section where the overheated liquid attains speed to open into a divergent and speed attainment nozzle where the liquid jet partially evaporates and instantaneously explodes under the effect of the pressure difference between the liquid and the ambient medium of the nozzle to form a mixture of fine droplets and vapor; the generatrix of the

divergent nozzle presenting a discontinuity, that is an angle, at its intersection with that of the annular injector, and the exit section of this nozzle is sized so that the mixture is ejected from the nozzle at the pressure P1 of the external medium at the maximum ejection speed.

18. (New) The device according to claim 17, wherein the annular injector comprises a free space between a cavity, for example cylindrical, and an injection core , the mode of fixation of the injection core on the nozzle body allows circulation of the liquid to be sprayed in the nozzle.

19. (New) The device according to claim 18, wherein the injection core of the annular injector is a profiled injection core of variable section increasing in the direction of flow that may slide on the axis of the annular injector, the exit section of the injector may then be adjusted by adjusting the position of the profiled injection core.

20. (New) The device according to claim 17, wherein at its junction with the cavity of the annular injector, the generatrix of the divergent nozzle is perpendicular to the walls of this cavity.

21. (New) The device according to claim 17, wherein the divergent nozzle is partially or totally integrated with the external support.

22. (New) A device designed to spray an overheated liquid in the form of very fine droplets at a very high speed, and allowing, for the same spray nozzle, the flow, pressure Po or

temperature To of the overheated liquid upon entry to be modified as required, as well as the pressure P1 of the gaseous medium in which the liquid is sprayed, while maintaining a maximum ejection speed of sprayed droplets exiting the device, the overheated liquid being a liquid at a temperature To and a pressure Po greater than the saturated vapor pressure Ps corresponding to To, the vapor pressure Ps itself being greater than the pressure P1 of the gaseous medium in which the liquid is sprayed, comprising:

a nozzle body fixed on a support allowing the supply of overheated liquid, the nozzle body comprising a conduit where the overheated liquid circulates, followed by one or more convergent heads and by one or more injectors where the overheated liquid attains speed to open into a divergent and speed attainment nozzle where the liquid jet partially evaporates and instantaneously explodes under the effect of the pressure difference between the liquid and the nozzle to form a mixture of fine droplets and vapor, a profiled core housed in the divergent nozzle, that may slide on the axis of this nozzle, and allowing, according to its position, the exit section of this nozzle to be adjusted, the continuous and monotonic profiles of the generatrixes of the divergent nozzle and of the core allowing an increasing passage section to be maintained between the nozzle and the core along the axis of the nozzle, whatever the position of the core, the generatrix of the divergent nozzle presenting a discontinuity, that is an angle, at its intersection with that of the injectors, and a mechanism allowing the core to be supported and its relative position with relation to the nozzle to be adjusted from the outside.

23. (New) The device according to claim 22, wherein at the output of the injectors, the generatrix of the divergent nozzle is perpendicular to the walls of these injectors.

24. (New) The device according to claim 22, wherein the divergent nozzle is partially or totally integrated with the external support.

25. (New) The device according to claim 22, wherein the positioning of the core in the divergent nozzle comprises automation designed to adjust the exit section of the nozzle so that the section corresponds to the flow, Pressure Po, and Temperature To of the overheated liquid upon entry, as well as to the Pressure P1 of the gaseous medium in which the liquid is sprayed, so that the ejection speed of the sprayed droplets exiting from the device is always maximum.

26. (New) The device according to claim 22, wherein the injector is an annular injector , the annular injector being comprised of the free space between a cavity , for example cylindrical, and an injection core.

27. (New) The device according to claim 25, wherein the injector is an annular injector , the annular injector being comprised of the free space between a cavity , for example cylindrical, and an injection core.

28. (New) The device according to claim 26, wherein the injection core of the annular injector is a profiled injection core with a variable section increasing in the direction of flow that may slide on the axis of the annular injector, the exit section of the injector may therefore be adjusted by adjusting the position of the profiled injection core.

29. (New) The device according to claim 27, wherein the injection core of the annular injector is a profiled injection core of variable section increasing in the direction of flow that may slide on the axis of the annular injector, the exit section of the injector may then be adjusted by adjusting the position of the profiled injection core.